REMARKS

After amendment, claims 1-40 and 45-47 remain pending in the present application. Claims 41-44 were previously cancelled. The claims have been amended to place the application in condition for allowance based upon the unexpected activity of DOT in inhibiting drug resistant forms of HIV. Support for the amendments to the claims can be found throughout the original specification, including the examples and originally filed claims. No new matter has been added by way of the present amendment.

The Examiner has objected to or rejected the previously pending claims for the reasons which are set forth in the December 11, 2006 office action on pages 2-7. Applicants have amended the claims to address each of the Examiner's objections/rejections where appropriate and to expedite the issuance of a notice of allowance in this application. Applicants shall address each of the Examiner's concerns in the sections which are presented hereinbelow. It is respectfully submitted that the application after amendment, is in condition for allowance.

The Objection to Claim 47

The Examiner has objected to claim 47 as being dependant upon a cancelled base claim. In response, Applicants have amended claim 47 to be dependent on claim 23. It is respectfully submitted that the amendment to claim 47 now obviates the Examiner's objection.

The 35 U.S.C. §101 Rejection

The Examiner has rejected claim 47 as being directed to a claim which recitates a use without setting forth any active steps involved in the claimed process. Applicants have amended claim 47, which was originally presented in Swiss-style format, rather than US format. Applicants have amended claim 47 to be dependent on claim 23 which is directed to a pharmaceutical composition. Applicants respectfully submit that the

amendment to claim 47 now obviates the Examiner's rejection and that claim 47 now complies with the requirements of 35 U.S.C. §101.

The 35 U.S.C. §112, Second Paragraph Rejection

The Examiner also rejected previously submitted claim 47 under 35 U.S.C. 112, second paragraph for the reasons which are stated in the first paragraph on page 3. Essentially, the Examiner indicated that previously pending claim 47 was dependent upon claim 41, a claim which had been cancelled from the present application. In response, Applicants have amended claim 47 to be dependent on claim 23, a pharmaceutical composition claim. It is respectfully submitted that the claims of the instant application are now in compliance with 35 U.S.C. §112.

The 35 U.S.C. §102 Rejection

The Examiner has rejected claims 1, 8-12, 19-22 30 and 37-40 variously under 35 U.S.C. §102 over Liotta, et al., U.S. patent no. 5,852,027 ("Liotta"), for the reasons which are detailed in the office action on pages 3-4 of the January 11, 2007 office action. Separately, the Examiner has rejected claims 1, 5-12, 17-20 and 35-40 under 35 U.S.C. §102 over Belleau, et al., U.S. patent no. 7,119,202 ("Belleau"), for the reasons which are stated in the office action on page 4. Applicants respectfully traverse the Examiner's rejection.

The claims of the present invention are directed to the use of DOT or its prodrug for the treatment of a drug-resistant form of HIV in a patient. Neither Liotta or Belleau disclose the treatment of a drug-resistant form of HIV utilizing DOT or its prodrug analog. It is noted that neither of Liotta and Belleau even mention drug-resistant forms of HIV and certainly do not disclose DOT or its prodrug analogs for treatment of same. An electronic search of the Liotta and Belleau patent documents show that the specification does not disclose or suggest the use of the compounds disclosed therein

with drug-resistant forms of HIV. Such a disclosure is nowhere to be found in the cited patent documents.

Moreover, the *in vitro* data which is presented in Liotta at columns 17-18, evidences that DOT provides moderate activity *by itself* against HIV, but does not disclose activity against *drug resistant* forms of HIV or its use in combination with other anti-HIV agents for the treatment of drug resistant forms of HIV. Belleau provides absolutely no biological studies or activity from which one of ordinary skill could glean that DOT was an agent which could be used effectively to treat HIV strains which are resistant to 3TC and/or AZT either alone or in combination with an additional anti-HIV compound as claimed.

Liotta clearly does not anticipate the present invention. The present invention is directed to the use of compounds as claimed (dioxolane Thymine or DOT and its related prodrug forms) for inhibiting or otherwise treating a drug resistant strain of HIV virus or HIV infection, in particular HIV strains which are 3TC and/or AZT resistant. Belleau does not even provide any biological data and doesn't even mention drug resistant forms of HIV. Without any additional disclosure, it is respectfully submitted that the Examiner has not made out a cogent case that the presently claimed invention is anticipated. Noted also is the rather detailed biological data in the present specification (see tables 1-5 on pages 17-20) which clearly evidence that compounds (DOT or prodrug forms) which are disclosed herein exhibit activity against drug resistant forms of HIV, including multiple drug resistant forms and that the compounds which are disclosed and claimed herein represent a viable therapeutic approach, alone or preferably in combination with another anti-HIV agent which exhibits inhibition of HIV by a mechanism other than that of DOT. In essence, the present invention represents a clear advance in the art of treating HIV infections.

For the above reasons, it is respectfully submitted that the claims of the present application are not anticipated by Liotta or Belleau.

The 35 U.S.C. §103 Rejection

The Examiner has rejected the previously filed claims under §103 as set forth in the office action on pages 5-6 as being obvious/unpatentable over Liotta, Belleau or Liotta and the Merck Manual of Diagnosis and Therapy, 17th edition ("Merck") for the reasons which are set forth therein. For the reasons which are presented below, Applicants respectfully submit that the presently pending claims are non-obvious and patentable over the cited art.

The present invention is directed to methods of or compositions for use in treating drug resistant (primarily 3TC and/or AZT drug resistant) forms of HIV using the claimed compounds (DOT or a prodrug form of DOT) alone or preferably in combination with another anti-HIV agent. Thus, the present invention is directed to the unexpected activity of DOT or its analogs in exhibiting significant inhibition of various drug resistant strains of HIV. The aforementioned biological activity is presented in the specification of the present application in tables 1-5 on pages 17-20. The Examiner rejected the previously pending claims as being obvious over the cited art. Applicants respectfully submit that the instant claims are non-obvious over that art.

In the first instance, the Examiner has rejected claims 2-4, 13-16, 31-34 and 45-47 as being unpatentable over the disclosure of Liotta. It is the Examiner's view that because Liotta teaches treating HIV infections generally, it would be obvious to use DOT or its analogs to treat drug-resistant forms of HIV. Applicants respectfully traverse the Examiner's rejection.

Prior to the disclosure in the present application, the art did not recognize, nor could one of ordinary skill predict that DOT or a related analog as claimed would be particularly effective in treating HIV which was resistant primarily to 3TC and/or AZT. That was simply unknown and unknowable unless someone took the time to test DOT against a number of drug resistant strains of HIV. Not only did Liotta *not* test the disclosed compounds against drug resistant strains of HIV, Liotta does not even mention

drug resistant forms in the specification. Given the absence of disclosure to that effect in Liotta, it simply cannot be said with any measure of conviction that the present claims are obvious over Liotta. Without testing, one cannot simply draw any conclusion with respect to the activity of a drug against a drug-resistant viral strain. It is simply untenable to suggest that Liotta somehow renders the present invention obvious.

Turning to the rejection or claims 2-4, 13-16, 31-34 and 45-47 as being obvious over Belleau, it is respectfully submitted that the disclosure of Belleau does not in any way render the present invention obvious. Belleau is directed to a number of nucleoside analogs, a number of which are posited as being active against HIV. Belleau provides absolutely no biological activity against HIV using DOT or a prodrug form. Belleau does not suggest nor even mention drug resistant forms of HIV or that DOT may be a useful agent against same. Belleau provides absolutely no motivation to provide the present invention. Without providing any biological activity against HIV and without suggesting the use of DOT or a related analog as claimed against a drug resistant form of HIV or even mentioning a drug resistant form of HIV, it is respectfully submitted that one of ordinary skill in the art could not possible have recognized the present invention from the disclosure of Belleau. The present invention is clearly patentable over Belleau.

We now turn to the Examiner's rejection of claims 5-7, 17, 18, 23-29, 35 and 36 as being patentable over Liotta, in view of Merck. Applicants have reviewed the disclosure of Liotta in view of Merck and the Examiner's discussion on pages 6-7 of the January 2007 office action and conclude that the present invention is patentable over the combined disclosures of those cited references.

For the reasons which have been detailed hereinabove, it is respectfully submitted that Liotta fails to suggest the present invention. In fact, Liotta does not even mention drug resistant forms of HIV, let alone their treatment with the claimed compounds. Turning to Merck, this reference, generic in nature, does not in any way obviate the deficient disclosure of Liotta inasmuch as Merck also fails to suggest that the nucleoside compounds of the present invention may be used to treat drug resistant forms of HIV and

in particular, 3TC and/or AZT resistant strains of HIV. Without so much as an oblique mention of drug resistant forms of HIV, the Examiner has concluded that Liotta in view of Merck can be combined to teach combination therapy using DOT or a related compound to treat specific drug resistant forms of HIV. Without so much as even an oblique reference to same, it is respectfully submitted that the present invention is non-obvious over the combined teachings of Liotta and Merck.

Thus, where, as *here,* the prior art is absolutely silent on both the teaching and/or the suggestion of the claimed invention, patentability is instilled. It is respectfully submitted that the instant claims are now fully compliance with the requirements of 35 U.S.C.

For all of the above reasons, it is respectfully submitted that the claims are patentable. Consequently, it is respectfully submitted that the pending claims are in condition for allowance and such action is earnestly solicited.

No fee is due for the presentation of the present amendment/response. A petition for an extension of time of two months is enclosed as is the appropriate fee. Small entity status applies to the present application. Please charge any fee due or credit any overpayment previously made to Deposit Account No. 04-0838.

Respectfully submitted,

Dated: June 6, 2007

Henry D. Coleman
Reg. No. 32,559
714 Colorado Avenue
Bridgeport, Connecticut 06605
(203) 366-3560

Certificate of Mailing

I hereby certify that this correspondence is being sent by first class mail in an envelope addressed to the Commissioner for Patents Mail Stop Non-fee Amendment P.O. Box 1450 Alexandria, VA 22313-1450 on June 6, 2007.

Henry D. Coleman, Reg. No. 32,559